Early Journal Content on JSTOR, Free to Anyone in the World

This article is one of nearly 500,000 scholarly works digitized and made freely available to everyone in the world by JSTOR.

Known as the Early Journal Content, this set of works include research articles, news, letters, and other writings published in more than 200 of the oldest leading academic journals. The works date from the mid-seventeenth to the early twentieth centuries.

 We encourage people to read and share the Early Journal Content openly and to tell others that this resource exists. People may post this content online or redistribute in any way for non-commercial purposes.

Read more about Early Journal Content at http://about.jstor.org/participate-jstor/individuals/early-journal-content.

ALGEBRA.

—

123. Proposed by ELMER SCHUYLER, B. Sc., Professor of German and Mathematics, Boys' High School, Reading, Pa.

$$\left(\frac{1+x}{1-x}\right)^{\frac{1}{4}}+\sqrt[4]{\frac{1-a}{1+a}}\sqrt{\frac{1-x}{1+x}}=2\sqrt[4]{\frac{1-a^2}{(1+a)^2}}, \text{ and } \sqrt{a^2-x^2}+x\sqrt{a^2-1}=a^2\sqrt{1-x^2}.$$

Haddon.

124. Proposed by J. SCHEFFER, A. M., Hagerstown, Md.

A certain quantity of alcohol diluted with water so that in one liter there are c liters of pure alcohol, is mixed n times successively with p times the quantity of alcohol diluted so that 1 liter contains a liter of pure alcohol. How much pure alcohol does one liter of the nth mixture contain?

∗∗* Solutions of these problems should be sent to J. M. Colaw not later than Dec. 10.

GEOMETRY.

—

151. Proposed by FRANK A. GRIFFIN, Assistant in Mathematics, University of Colorado.

A point is at a distance of 1 inch, 2 inches, and $2\frac{1}{2}$ inches, respectively, from three corners of a square. Construct the square. Also solve for the general distances a, b, c.

152. Proposed by ELMER SCHUYLER, B. Sc., Professor of German and Mathematics, Boys' High School, Reading, Pa.

Find a point in a given straight line, such that tangents drawn from it to two given circumferences shall make equal angles with the line. *Chauvenet.* (Four solutions.)

153. Proposed by WILLIAM HOOVER, A. M., Ph. D., Professor of Mathematics and Astronomy, Ohio University, Athens, Ohio.

If P, P', Q, Q' be the extremities of two chords of a conic section, and both chords pass through the point A, show that the sum of the squares of the reciprocals of AP, AP', AQ, AQ' is constant.

∗∗* Solutions of these problems should be sent to B. F. Finkel not later than Dec. 10.

CALCULUS.

—

114. Proposed by JOHN M. COLAW, A. M., Monterey, Va.

If two concentric ellipses have equal axes inclined at an angle ω, their common area is

$$A=2ab\tan^{-1}\left(\frac{2ab}{(a^2-b^2)\sin\omega}\right).$$

115. Proposed by F. P. MATZ, M. Sc., Ph. D., Professor of Mathematics and Astronomy in Irving College, Mechaicsburg, Pa.

The axes of two right elliptic cylinders intersect at right angles, *major axes of the sections* are perpendicular. Supposing the axes to be $(A, B) > (a, b)$, what is the common volume?

∗∗* Solutions of these problems should be sent to J. M. Colaw not later than Dec. 10.